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**(3) REMARKS****A. CLAIM OBJECTIONS**

The Office Action objects to claim 5 because in line 8 it states: "thereby a data visualization tool that is...". The examiner's suggestion to reword this as "thereby providing a data visualization tool that is..." has been adopted. Accordingly, this basis for objection has been removed.

**B. CLAIM REJECTIONS – 35 U.S.C. §112, SECOND PARAGRAPH**

The Office Action rejects claims 1, 6, 9-11, 17 and 21 for points identified as indefinite for various reasons. In each case, the objectionable language has been removed. Accordingly, this basis for objection has been removed.

**C. CLAIM REJECTIONS – 35 U.S.C. §103(a)**

The Office Action rejects claims 1-3, 5-13, 17, 21, 25-26 and 28 under 35 USC §103(a) as defining an invention which is viewed as obvious from Kanevsky in further view of applicants' admitted prior art. This rejection is respectfully traversed because the references themselves do not provide any motivation for the combination and the combination proposed is not what is defined by the claims.

It will be recalled that the invention provides a hardware-adaptable data visualization tool for use in visualizing data from a data source. It includes a data source module, for providing a numerical data set representing aspects of data to be interpreted and a viewer module, responsive to the numerical data, for providing a view of the numerical data set, such as a fully immersive view or a more limited view, helpful to a user in interpreting the numerical data set. The combination is made such that the viewer module in turn comprises a set of component modules, and the source module and the viewer component modules are compiled and linked together into one or more executable files depending on factors including the performance capabilities of a predetermined target host or hosts as well as the desired utility of the executable files. The component

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modules have programming interfaces that are substantially independent of the predetermined target host or hosts.

The invention has been described here in terms of designing urea injectors for a boiler (used to produce steam) to reduce the emission of nitrogen oxide compounds ( $\text{NO}_x$ ). In particular, it is described in terms of the use of visualization with CFD to model the combustion process within such a boiler, including the effect of injecting urea into the flow of combustion products. However, while nothing about the present invention requires that the data visualization tools provided according to the invention be restricted to modeling a combustion process using CFD, or to designing a urea injection system for a boiler, it must be recognized that the prior art applied in a rejection under 35 USC §103 for obviousness, must show that type of embodiment to be obvious to the person skilled in the art. The present invention provides tools for use in visualizing complex data from any source and reaching design decisions from said visualization.

The prior art cited in the rejection for obviousness, however, is not directed to the same type of tools claimed. Indeed, the prior art does not itself relate to technologies sufficiently similar to each other that the person skilled in the art would have considered their combination obvious at the time the invention was made. The Kanevsky reference is not directed to a tool capable of visually immersive study of a data based problem. Kanevsky is directed to an internet based system which enables organization of viewing material associated with web sites for visual displays and windows on which these home pages are being viewed. It provides for different viewing strategies for visual devices of differing capability, varying, for example, from standard PC monitors, laptop screens and palmtops to web phone and digital camera displays and from large windows to small windows. The described display strategy of Kanevsky is provided by a web page adaptation scheme that is implemented on a web site server or is incorporated in a web browser (e.g., as a java applet) or both. This adaptation strategy employs variables that provide size of screen and/or window information from which a call to a web site was initiated.

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The patent mentions nothing of CFD data or displays of the type referenced by applicants as being prior art. There is nothing other than applicants' very description of their invention that would cause one skilled in the art of CFD procedures to look from what applicant described as known to the very different technology of internet display technology taught by Kanevsky.

The prior art described by applicants is unquestionably prior art for what it states, but there is no context to it as described that would make its combination with the Kanevsky reference obvious. Even if the combination of the references teaches every element of the claimed invention, without a motivation to combine, a rejection based on a *prima facie* case of obvious is improper. See, for example, *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

In determining the propriety of a rejection for obviousness, it is necessary in the first instance to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification. See, in this regard, *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). In the present case, the only motivation for making the combination comes from applicants' very disclosure of the invention. The Kanevsky reference is not directed to CFD or like computations of the type claimed. There is no reason why one skilled in the art knowing of the art applicants admit, would look to the Kanevsky reference, because the admitted prior art did not itself suggest what it was that was needed to improve it. The internet tool of Kanevsky reference would not bring applicants' improvement to mind.

At several points in the Office Action, the examiner refers to Official Notice being taken of specific points. Applicants hereby specifically traverse these statements as they might apply to any prior art having close relationship to the tools of the invention or in the context of applicants' admitted prior art. The general statement of the Office Action cannot be substituted for prior art citations which are most properly read in the context they present, not as a teaching of a generalized tool or technique known to be suitable for all applications.

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Without applicants' teaching of how to modify the admitted prior art to achieve applicants' objectives there would be no teaching at all. The art simply does not provide either the motivation or the technology to solve the problem that applicant has addressed. The fact that the art knew of various display technologies for internet applications, does not teach the person skilled in the art how to arrive at applicants' unique data manipulation and display tools. That the invention seems obvious in hindsight is evidence of unobviousness, not obviousness.

The Office Action also rejects claims 18 and 22-24 under 35 USC §103(a) as defining an invention which is viewed as obvious from Kanevsky in further view of applicants' admitted prior art and Hanselman. This rejection is respectfully traversed because the references themselves do not provide any motivation for the combination and the combination proposed is not what is defined by the claims.

Again with regard to this rejection, there is a lack of substance of the references which the person of ordinary skill in the art would find to make the claimed combinations obvious. The Office Action takes aspects of divergent technologies and combines them in a manner taught only by applicants, and does so with disregard for the context of the references or the problems confronting applicants. It must, again, be remembered that none of the reference teachings are directed to either applicants' problems or to any known to exist for applicants' admitted prior art.

The Office Action also rejects claim 4 under 35 USC §103(a) as defining an invention which is viewed as obvious from Kanevsky in further view of applicants' admitted prior art taken further in view of Stam. This rejection is respectfully traversed because the references themselves do not provide any motivation for the combination and the combination proposed is not what is defined by the claims. Again, none of the reference teachings are directed to either applicants' problems or to any known to exist for applicants' admitted prior art.

Stam describes a method for performing computer graphic simulation of a fluid in motion. The method takes input data and calculates the velocity of the fluid at a plurality of points at successive time intervals. The velocity values are sent to an animator module

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which produces a geometrical description of the scene. This geometrical description is then sent to a renderer module, which calculates an image using the geometrical description. The animation is then displayed on an output device. In an embodiment of the invention, scalar quantities such as temperature and density are calculated as well and sent to the renderer module, where they are used in calculating the image. The process of calculating velocity and scalar fields comprises solution of the Navier-Stokes equations, is easy to implement, and allows a user to interact in real-time with three-dimensional fluids on a graphics workstation. The invention achieves this by using time-steps much larger than the ones used by conventional techniques, thus obtaining a stable solver for these equations. It is very clear that this type of system is not capable of applicants' realistic simulated real time displays that enable an engineer to solve complex three dimensional CFD problems involving several relatively moving fluid materials in a complex three dimensional structure and watch as the values of variables are changed.

Applicant has made a significant improvement in providing new CFD tools by providing an immersive data generation and display tool set. The claims clearly and concisely set this invention out in terms that patentably distinguish from the prior art. Accordingly, reconsideration and allowance of all claims are believed in order, and such actions are earnestly solicited. If applicant's representative can advance the application toward allowance by telephone, the examiner is requested to call him at the number listed below.

Respectfully submitted,

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